11/09/05

'04-'06 FORD F-150 4WD
4"-6" SUSPENSION SYSTEM
P/N: 10-42404

INSTALLATION INSTRUCTIONS

NOTE: **Each lift kit, and options to lift kits, are packaged separately. Therefore installation procedures are covered in separate instructions. Familiarize yourself with each specific set of instructions before beginning.**

Part List

Item	*Description*	*Qty.*	*Illus.*
Box 1 of 6			
20-52404-1	Front Crossmember	1	14, 15
20-52404-2	Rear Crossmember	1	10, 11, 15, 19
Box 2 of 6			
20-52404-5D	Steering Knuckle/Spindle - Driver's Side	1	1
Box 3 of 6			
20-52404-10	Rear Compression Strut Mount	2	19
20-52404-11	Compression Strut	2	19
20-70255	Hardware Pack: Compression Strut Mount	1	
13-21456-Z	Hex Bolt, 1/2" x 1-1/2" Gr. 8	4	19
13-23120-Z	Hex Bolt, 7/16" x 3-1/2" Gr. 8	2	10
13-30382-Z	Washer, 1/2" Flat HRDN	8	19
13-30304-Z	Washer, 7/16" Flat HRDN	4	10
13-10514-Z	Nut, 1/2" Top Lock	4	19
13-10384-Z	Nut, 7/16" Top Lock	2	10
20-70268	Hardware Pack: Compression Strut	1	
13-20069-Z	Hex Bolt, 1/2" x 4"	4	19
13-30034-Z	Washer, 1/2" Flat	8	19
13-10038-Z	Nut, 1/2" Nyloc	4	19
20-830918	Sleeve, 3/4" x .095w x 2.75"	4	19
15-11148	Bushing, Red	8	19
Box 4 of 6			
20-52404-3	Rack and Pinion Bracket	2	8
20-52404-4	Differential Skidplate	1	15
20-52404-7	Sway Bar Drop Bracket	2	18
20-52404-8	Differential Drop Bracket (Pass.)	1	9, 10
20-52404-9	Differential Drop Bracket (Drvr.)	1	9, 10
20-70242	Hardware Pack: Misc. Mounts	1	
13-22028-Z	Hex Bolt, 5/8" x 4-1/2" Gr. 8	2	8
13-21118-Z	Hex Bolt, 7/16" x 1-1/4" Gr. 8	4	18
13-23471-Z	Hex Bolt, 3/8" x 1-1/2" Gr. 8	4	15
13-30369-Z	Washer, 5/8" Flat HRDN	4	8
13-30304-Z	Washer, 7/16" Flat HRDN	8	18
13-30408-Z	Washer, 3/8" Flat HRDN	6	15
13-30151-Z	Washer, 3/8" Split Lock	2	15
13-10345-Z	Nut, 5/8" Top Lock	2	8
13-10384-Z	Nut, 7/16" Top Lock	4	18
13-10553-Z	Nut, 3/8" Top Lock	2	15
20-834350	Rack & Pinion Spacer	2	8

20-70281	Hardware Pack: Crossmembers	1	
20-52404-14	04-Up Ford F150 Cam Bolt	4	
13-23588-Z	Hex Bolt, 7/16" x 4" Gr. 8	1	10
13-30876-Z	Washer, 18mm Flat HRDN	4	
13-30304-Z	Washer, 7/16" Flat HRDN	2	10
13-10969-Z	Nut, 18mm Nyloc	4	
13-10384-Z	Nut, 7/16" Top Lock	1	10
20-70294	Hardware Pack: Rear E-Brake Cable & Brakeline	1	
20-52404-12	Rear Brakeline Mount	1	21
20-52404-13	Emergency Brake Cable Mount	1	20
13-22093-Z	Hex Bolt, 7/16" x 1-1/2"	1	
13-30304-Z	Washer, 7/16" Flat HRDN	2	
13-10384-Z	Nut, 7/16" Top Lock	1	
20-70512	Hardware Pack: Axle Spacers	1	
20-52404-20	04-Up Ford F150 Axle Spacer	2	17
13-20758-Z	Hex Bolt, 12mm x 50mm	12	17
13-30460-Z	Washer, 12mm Split Lock	12	17
13-30546-Z	Washer, 12mm Flat HRDN	12	17
20-70525	Hardware Pack: Front Driveshaft Spacer	1	
20-52404-15	04-Up ford F150 Front Driveshaft Spacer	1	13
13-20758-Z	Hex Bolt, 12mm x 50mm	4	13
13-30546-Z	Washer, 12mm Flat HRDN	4	13
20-70564	Hardware Pack: Front Brakelines	1	
50-52404-1	04-Up Ford F150 Front Brakeline (Drvr.)	1	
50-52404-2	04-Up Ford F150 Front Brakeline (Pass.)	1	
50-5700-2	Brake Line Clip	2	
50-5700-4	Brake Line Crush Washer 10mm	4	
20-68188	Hardware Pack: U-Bolts	1	
13-30330	Washer, 9/16" Flat HRDN, Plain	8	22
13-10423	Nut, 9/16" High, Plain	8	22
13-91049	U-Bolt, 9/16" x 3-1/4" x 12.5" SQ	4	22
20-834220	04-Up Ford F150 Rear Block (5in.)	2	22
20-68305	Hardware Pack: Misc.	1	
13-20447-Z	Screws for Brake Line Clamps	4	
15-10966	Brake Line Clamps	4	
15-11395	Zip Tie, 6"	4	
15-11447	Zip Tie, 8"	2	
15-11460	Zip Tie, 11"	2	

Box 5 of 6

20-52404-6P	Steering Knuckle/Spindle - Passenger's Side	1	2

Box 6 of 6

50-BE5-B316-T0	Front Shock	2	
50-BE5-B317-T0	Rear Shock	2	

INTRODUCTION

- Installation by a professional mechanic is recommended. Use of the appropriate tools, a Ford service manual, and a shop hoist can greatly reduce installation time.

- Prior to installation, carefully inspect the vehicle's steering and drive train systems, paying close attention to the tie-rod ends, rack & pinion unit, ball joints and wheel bearing preload. Also check steering-to-frame and suspension-to-frame attachment points for stress cracks. The overall vehicle must be in excellent working condition; repair or replace worn parts.

- Read instructions carefully and study illustrations before attempting installation. ***RCD Suspension*** is not responsible for damage, failure or injury resulting from improper installation or parts substitution of this kit.

- Check parts and hardware against the parts list to assure that your kit is complete. Report any shortages to RCD Suspension at (1-619-588-4723). The parts and hardware supplied are of high-grade material and must not be replaced by inferior parts or failure may result. Do not begin installation if parts are missing.

- Separate parts according to the areas they will be used. Placing the hardware with brackets before you begin will save installation time.

- This kit is supplied as a bolt-on assembly. Do not weld anything to the components and do not weld the components to the vehicle.

- All components in this kit come with a protective coating. Do not plate (i.e. chrome, cadmium, zinc etc.) or otherwise alter the finish in any way. This could decrease the structural strength of the components.

- Secure and properly block vehicle prior to beginning installation.

- Always wear safety glasses when using power tools.

- Foot-Pound torque readings are listed on the Torque Specifications chart at the end of the instructions unless specifically stated in an instruction.
  DO NOT USE AN IMPACT WRENCH TO TIGHTEN ANY OF THE BOLTS.

PLEASE NOTE

- **WARNING:** DO NOT USE WHEEL SPACERS
- Front-end realignment is necessary.
- Speedometer recalibration is necessary if larger tires (10% more than stock diameter) are installed.
- Brake system will need to be bled by a professional brake technician.
- This kit is designed to be either 4” or 6” lift depending on how the front shocks are installed.
- The 4” setting is designed to accommodate a 33” x 12.50” tire on a wheel size of 17” x 8” with a maximum of 4-5/8” backspacing, while the 6” setting is designed to accommodate a 35” x 12.50” tire on a wheel size of 17” x 8” with a maximum of 4-5/8” backspacing.
- Special tools are required for safe removal and installation of certain parts. These tools can be purchased through your Ford Dealer.

C-Frame and Screw (P/N 211-023)
Front Wheel Hub Remover (P/N 205-D070)

Note: The Front Driveshaft will need to be rebalanced to complete this installation.

Front Installation Instructions

1. Raise the vehicle. If working without a shop hoist, support vehicle with suitable safety jack stands. Put vehicle in gear, set emergency brake and block rear wheels, both in front and behind tires. Loosen front wheel lug nuts. Place floor jack under the lower control arm's front crossmember and raise vehicle. Place safety jack stands under frame rails, behind front wheel wells, and lower the frame onto the stands. Once securely on jack stands remove floor jack. Remove front wheels.

2. Remove any chassis skidplates (if equipped).

3. Beginning with the Driver's side, unclip the brakeline, ABS sensor line (if equipped) and 4wd hub vacuum line from each other as well as from any connections on the Steering Knuckle. Disconnect the vacuum lines from the Integrated Wheel End Disconnect (4wd hub engaging mechanism) at the Steering Knuckle.

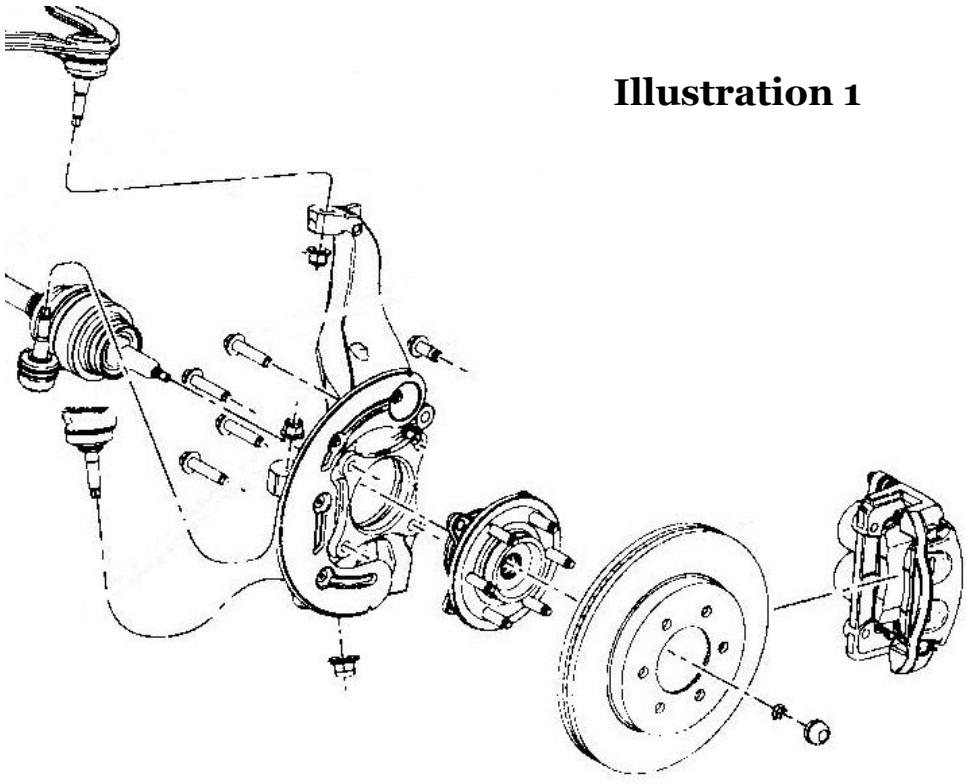
4. Remove the bolts holding the Caliper Anchor Bracket to the Steering Knuckle **(Illustration 1).** Pull the Bracket and Caliper assembly away from the Brake Rotor and hang out of the way with a length of wire, careful not to damage the brake lines. ***DO NOT let the Caliper hang from the brake line.***

5. Remove the Brake Rotor from the Hub and the Dust Shield from the Steering Knuckle.

6. Remove Wheel Speed Sensor (if equipped with ABS) from the Steering Knuckle.

7. Remove the Axle-to-Wheel Hub Nut dust cover, and then remove the Axle-to-Wheel Hub Nut **(Illustration 1).** Remove the four Wheel Hub-to-Steering Knuckle bolts and separate the Hub assembly from the Knuckle using special tool 205-D070.

Illustration 1



8. Remove the bolts holding the Integrated Wheel End Disconnect to the backside of the Steering Knuckle **(Illustration 2).**

9. Remove the six bolts holding the Halfshaft and Inner CV Joint to the Front Differential. Remove the Halfshaft from the vehicle. ***DO NOT damage the vacuum seal on the Integrated Wheel End Disconnect assembly.***

10. Remove the nut from the steering Tie Rod. Separate the Tie Rod from the Steering Knuckle using special tool 211-023.

11. Remove the nut from the Lower Ball Joint. Separate the Lower Ball Joint from the Steering Knuckle.

12. Remove the nut from the Upper Ball Joint. Separate the Upper Ball Joint from the Steering Knuckle and set the Knuckle aside.

13. Remove the Sway Bar Link from the Lower Control Arm **(Illustration 3).**

14. Remove the Lower Shock Mount Bolt on the Lower Control Arm, followed by the three upper Shock Mount nuts, and remove the Shock and Spring assembly **(Illustration 4).**

15. Remove the two bolts mounting the Lower Control Arm to the frame crossmembers and remove the Control Arm from the vehicle **(Illustration 4).**

Illustration 2

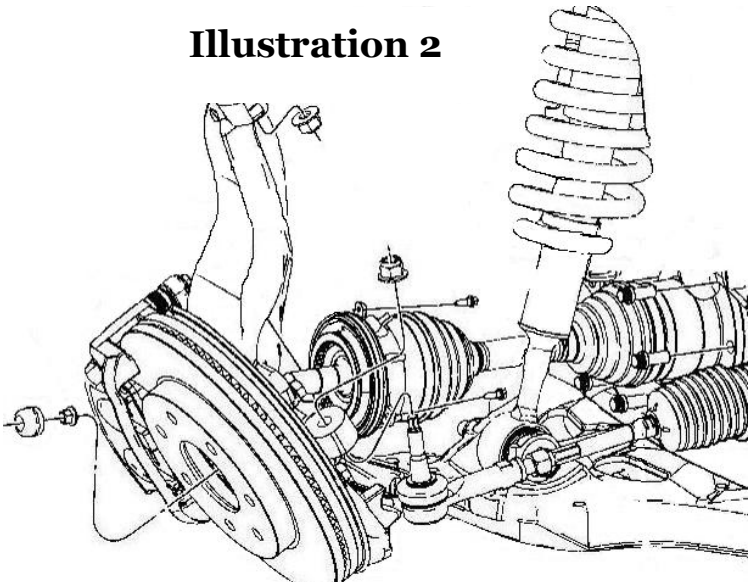


Illustration 3

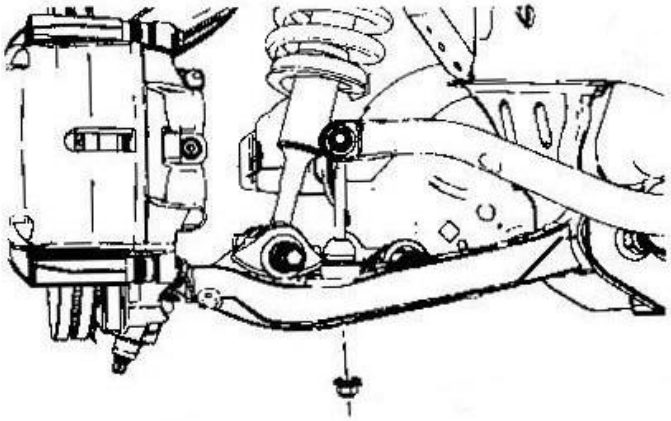
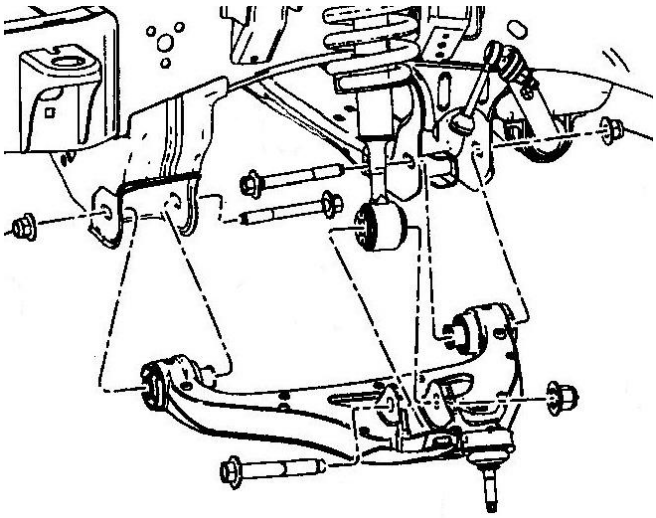


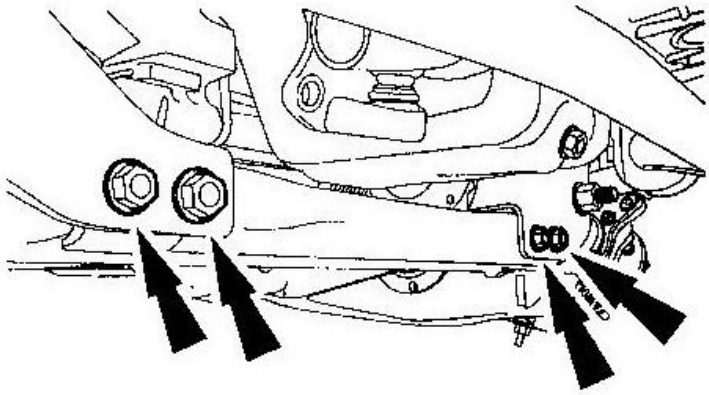
Illustration 4



16. **Repeat steps 3-15 on the Passenger's Side of the vehicle.**

Illustration 5

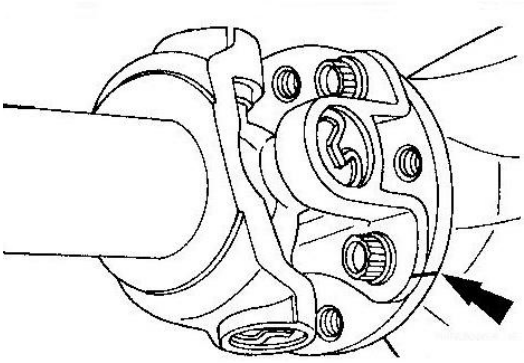
17. Remove the four bolts holding the stock Rear Crossmember onto the frame (just behind the front differential) **(Illustration 5).**



18. Put an index mark on flange of Front Driveshaft at Differential and Transfer Case **(Illustration 6).** Remove the four bolts holding the Front Driveshaft to Differential, and also the four bolts holding the Front Driveshaft to the Transfer Case, and remove the Front Driveshaft.

Illustration 6

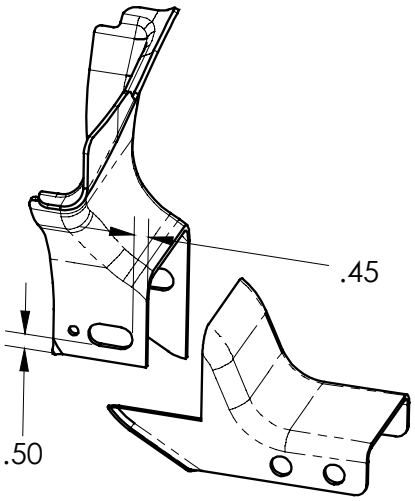
19. Support the Front Axle Housing with a suitable hydraulic jack. Disconnect the axle vent hose from the front axle. Remove the three bolts holding the Front Differential. Then lower Front Differential and move out of the way. **Note: It may be necessary to rotate the steering shaft to remove the upper Differential bolt.**



20. Mark and then cut the frame at the left rear control arm mounting location **(Illustration 7).**

Illustration 7

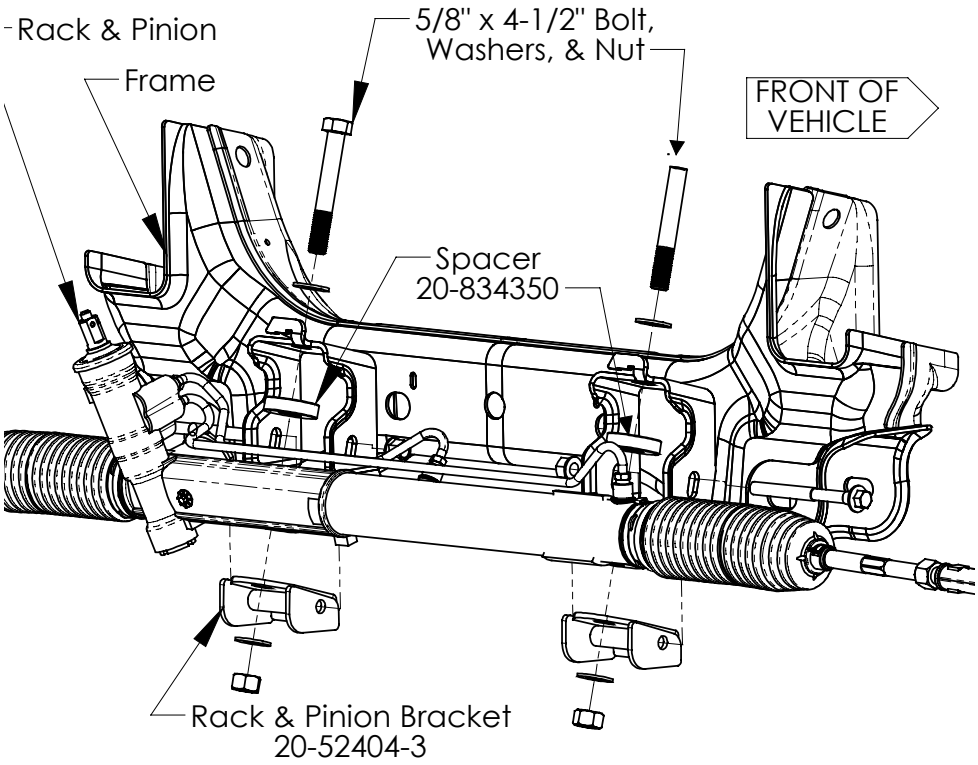
21. Remove the two 10mm bolts holding the Steering Rack. Loosen the two 16mm bolts holding the Steering Rack. One side at a time, remove the 16mm bolt and bracket, and replace with the 5/8 x 4-1/2" bolt, washer, spacer 20-834350, and new Rack & Pinion Bracket 20-52404-10. Secure with 5/8 Toplock and Washer provided. Install original 10mm cross bolts and tighten all bolts. **(Illustration 8).**



22. Install Diff Drop Bracket 20-52404-8 on passenger side using original bolt. Do not tighten at this time. **(Illustration 9).**

23. Install Diff Drop Bracket 20-52404-9 on driver's side using original bolt. Do not tighten. **(Illustration 9).**

Illustration 8



24. Raise Front Differential into position in RCD Diff Drop Brackets, and install two 7/16 x 3-1/2 bolts with washers through Diff Drop Brackets, and secure with the 7/16 nuts and washers provided. Do not tighten. **(Illustration 10).**

25. Raise the RCD Rear Crossmember into place and install the two original 18mm bolts. Install the 7/16 x 4 bolt through the Rear Crossmember to Differential. Install the two original 10mm bolts on right side. They will go through the Diff Drop Bracket and RCD Rear Crossmember. Torque the 18mm bolts to 222 ft. lbs, and the 10mm bolts to 66 ft. lbs. **(Illustration 11).**

26. Tighten previously installed 7/16" and 10mm hardware on the RCD Rear Crossmember and Diff Drop Brackets. Torque the 7/16" Bolts to 60 ft. lbs, and the 10mm bolts to 66 ft. lbs.

Illustration 9

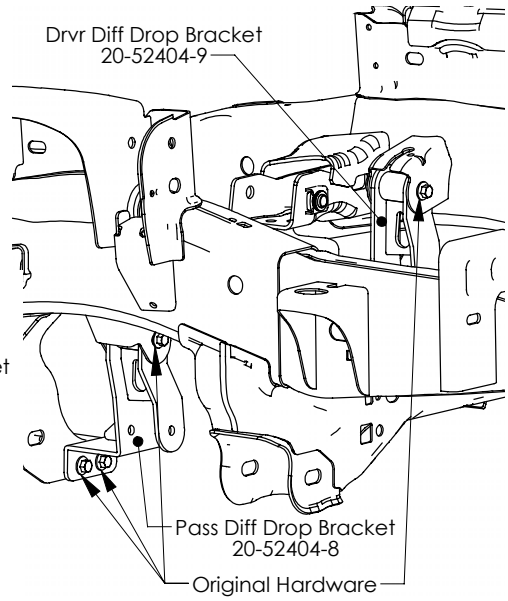


Illustration 10

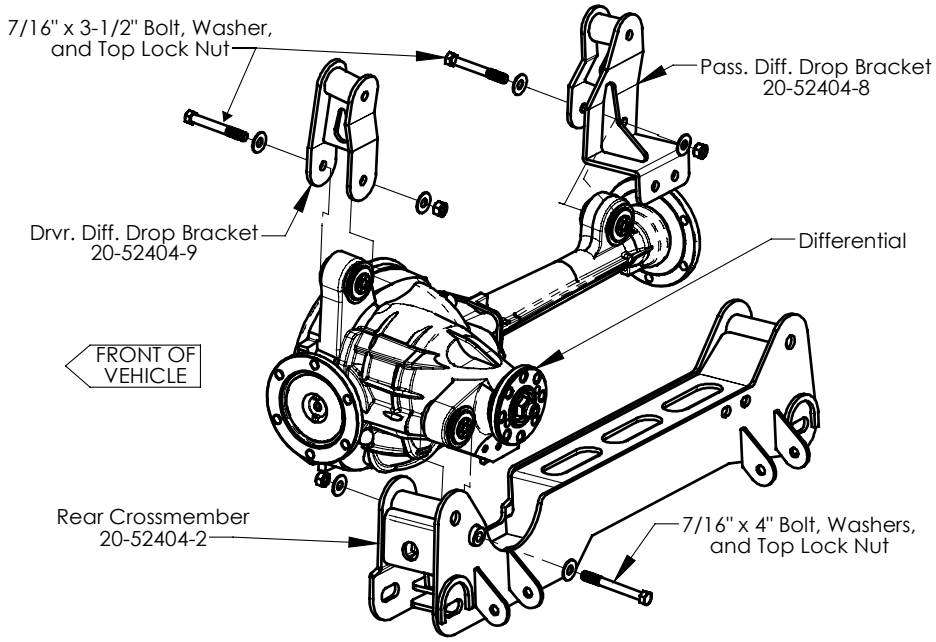
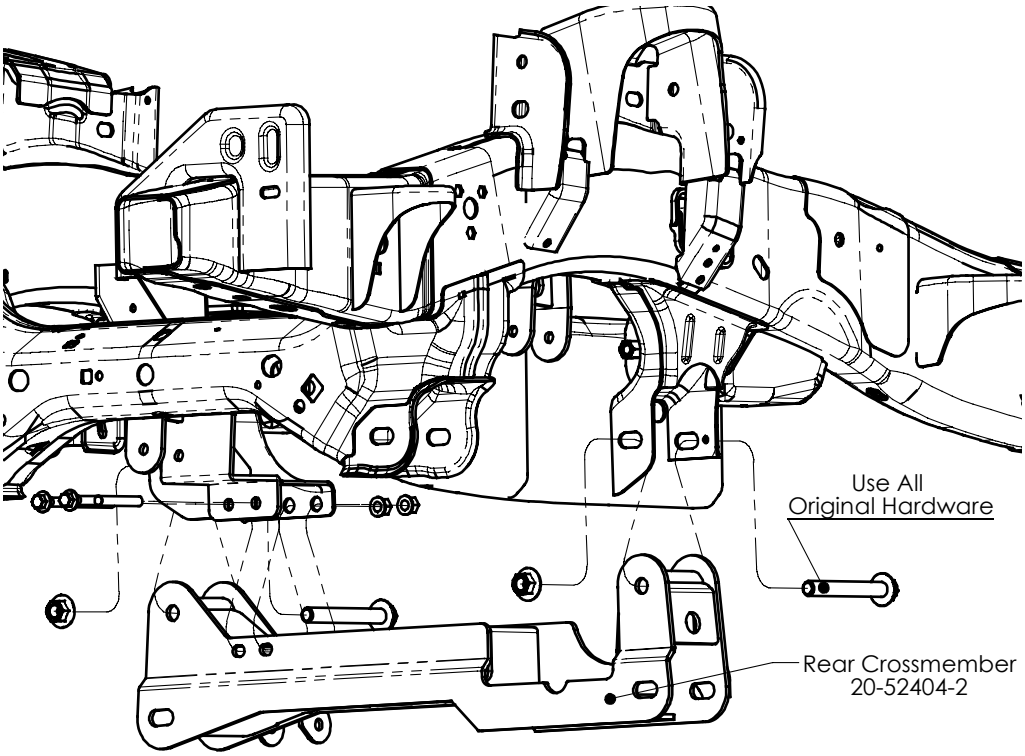
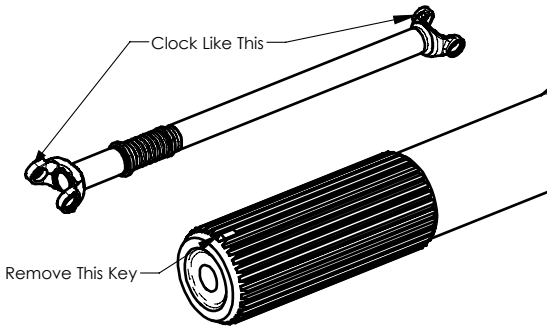


Illustration 11



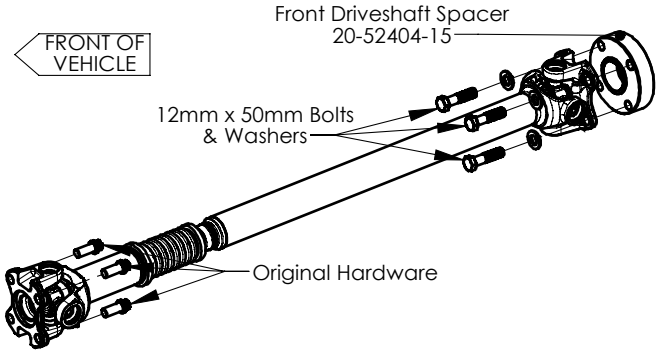
27. The Front Driveshaft will now have to be re-clocked. Remove the clamps holding the rubber boot and slide the Yoke off. Remove the boot. Now locate the notch on the male spline that has been filled in **(Illustration 12).** You will need to remove this with a grinder. Once it is removed reinstall the boot and yoke. The yoke will have to be rotated 90 degrees from it's original position **(Illustration 12).**
Note: The Front Driveshaft will need to be rebalanced at this time. Take it to a qualified driveline shop for balancing.

Illustration 12



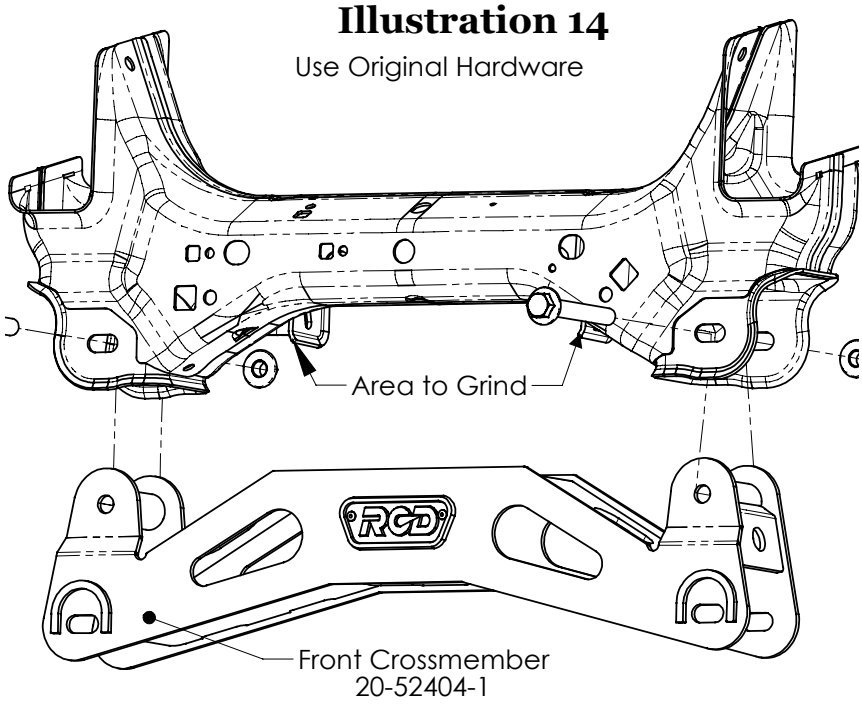
28. Once the Front Driveshaft has been rebalanced it can be reinstalled. Insert the Front Driveshaft Spacer 20-52404-15 between the Driveshaft and Transfer Case, using the 12mm x 50mm bolts and washers provided, and the original bolts at the Front Differential. Torque all to 83 ft. lbs. **(Illustration 13).**

Illustration 13



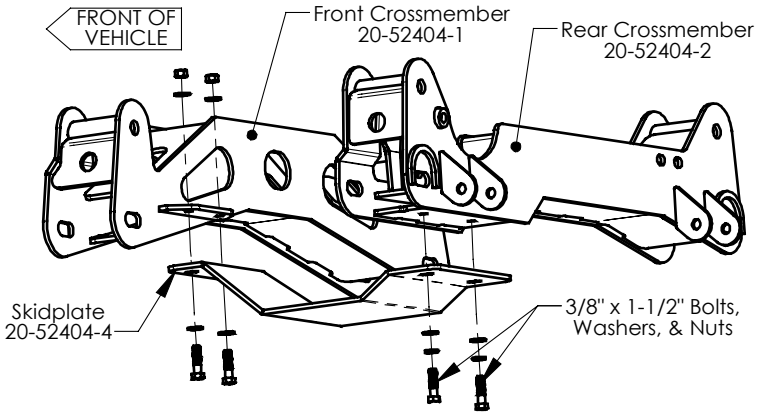
29. Raise the RCD Front Crossmember into place and install the two original 18mm bolts. Torque the 18mm bolts to 222 ft. lbs. **(Illustration 14).**
Note: It may be necessary to grind the two rack & pinion brackets to clear the RCD Front Crossmember.

Illustration 14



30. **Shock Absorber and Spring Assembly.** Using a suitable spring compressor, compress the spring until tension is released from the shock absorber. Remove the nut at the top of the shock absorber and carefully remove the shock. Remove the rubber bump stop from shock absorber. Now remove the striker cap from the shock and slide the spring seat off. Install the spring seat on new shock against snap ring. Install new striker cap on shock. Install original bump stop on shaft. This will fit around the black rubber sleeve provided. Now insert shock into spring and cap and install nut. Carefully release the spring tension.
Note: The shock (50-BE5-B316-T0) has two snap ring grooves. For 6" lift use the upper groove. If you would like 4" lift then move the snap ring to the lower groove.

Illustration 15

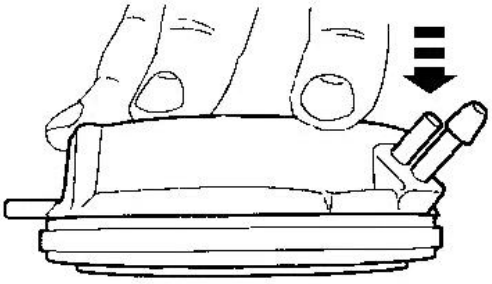


31. Install both Lower Control Arms into the RCD Crossmembers using the 18mm Cam Bolts, Nuts, and Washers provided.
Do Not tighten at this time.

32. Install the RCD Skidplate under the Differential. **(Illustration 15).**

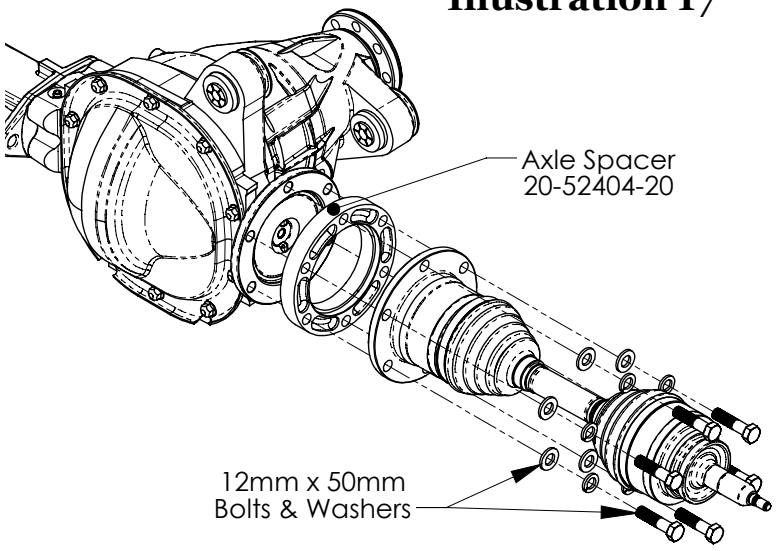
33. Install the new Front Shocks using original hardware. Torque the upper nuts to 35 ft. lbs, and the lower bolt and nut to 351 ft. lbs.

Illustration 16



34. Beginning with the Driver's side, compress the Integrated Wheel End Disconnect on the bench to collapse the vacuum chamber. While it is collapsed install a vacuum cap on the vacuum port **(Illustration 16).** Install the Integrated Wheel End Disconnect on the outer constant velocity joint housing. Install the Front Axle Halfshaft in the vehicle. Use the Axle Spacers 20-52404-20 and 12mm x 50mm bolts and washers provided. Torque the 12mm bolts to 60 ft. lbs. **(Illustration 17).**

Illustration 17



35. Install the new Steering Knuckle to the lower ball joint with nut. Then install the upper ball joint and tie rod. Torque the lower ball joint to 111 ft. lbs. and the upper ball joint and tie rod to 85 ft. lbs.
NOTE: Before installing the new Steering Knuckles, make sure that the Upper and Lower Ball Joint tapers and the Tie Rod taper are all clean and dry. Clean with mineral spirits, if necessary, to remove dirt and grease.

36. Install the three integrated wheel end disconnect bolts and torque to 11 ft. lbs. **(Illustration 2).**

37. Install the Hub assembly to the Steering Knuckle with the original bolts, being careful not to damage the o-ring. Torque the bolts to 148 ft. lbs. Install the Axle-to Wheel Hub Nut and torque to 20 ft. lbs. Install the Wheel Speed Sensor (if equipped with ABS) and torque to 13 ft. lbs. **(Illustration 1).**

38. Install the Brake Dust Shield. Slide the Brake Rotor onto the hub.

39. Install the Brake Caliper Assembly onto the Steering Knuckle. If the brake hose won't allow the Caliper to be bolted on, place a jack under the Lower Ball Joint stud and raise the suspension so that it isn't fully drooped. Torque the Caliper Mount bolts to 148 ft. lbs.

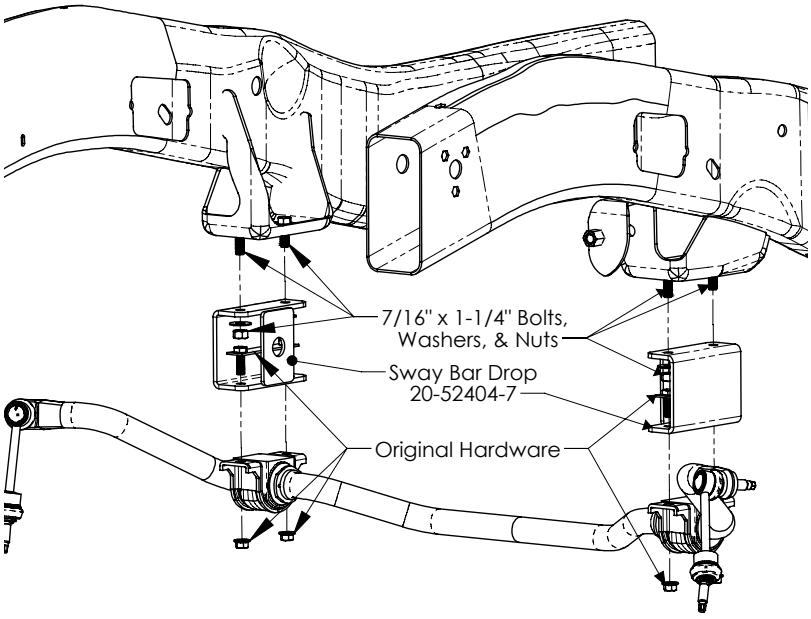
40. Remove the brake hose, and replace it with the new Driver's Side Stainless Steel Braided Brake Line (50-52404-1). ***Note that the Driver and Passenger's Side Brake Lines are not interchangeable.*** Reinstall the Banjo Bolt at the Caliper with two new crush washers (50-5700-4) and torque to 20 ft. lbs. Secure the upper end of the new Brake Line using the supplied e-clip (50-5700-2). Reinstall the hard brake line to the new Stainless Steel Braided Brake Line (at the frame bracket) and torque to 14 ft. lbs. Cycle the suspension and steering to make sure the new brake lines do not interfere with any moving parts, and are secured with the supplied plastic Zip-ties. Also secure the Speed Sensor Line and Vacuum Line at this time.

41. Repeat step 33-40 on the Passenger's side of the vehicle, using the new Passenger's Side Stainless Steel Braided Brake Line (50-52404-2).

42. Install Sway Bar Drop Brackets to frame using 7/16 x 1-1/4 bolts, washers and nuts provided. Install Sway Bar to Brackets using original hardware. Attach Sway Bar Links to control arms. Torque 7/16 bolts to 60 ft. lbs, Sway Bar to Bracket bolts to 35 ft. lbs. and Sway Bar to Control Arm nuts to 66 ft. lbs. **(Illustration 18).**

43. Assemble Bushings (15-11148) and Sleeves (20-830918) into both ends of both Compression Struts (20-52404-11). Using 1/2" x 4" Hex Bolts (with the bolt heads facing inward), washers and nuts, insert mount compression struts into brackets on the back of the RCD Rear Crossmember **(Illustration 19).**

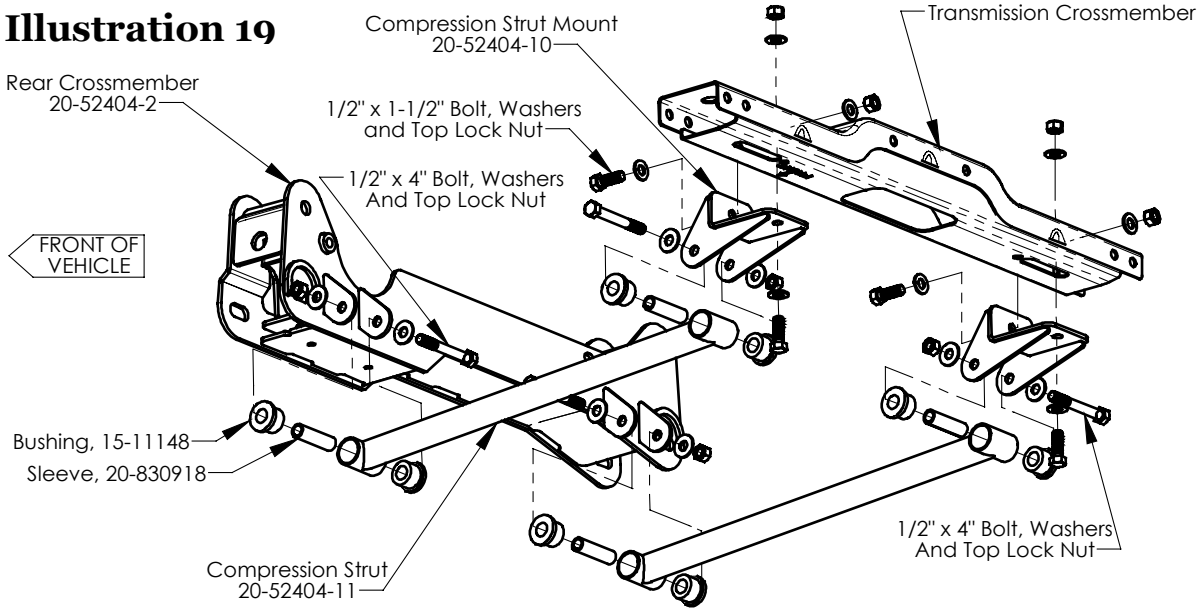
Illustration 18



44. Attach Compression Strut Mount Brackets (20-52404-10) to opposite end of Compression Strut using 1/2” x 4” Hex Bolts, washers and nuts and swing up towards frame **(Illustration 19)**. Mounts should intersect stock crossmember. Mark holes to be drilled to mount brackets. Lower and drill 1/2” holes as marked. Disconnect the Compression Strut Mounts from the Compression Struts, and bolt them through the newly drilled holes using the 1/2” x 1-1/2” Hex Bolts, washers and nuts, and torque to 90 ft. lbs. Reinstall the Compression Struts to the Mounts, and torque all remaining 1/2" hardware to 90 ft. lbs.

45. Bleed the brakes, checking for leaks at the newly installed fittings. Install the wheels and tires, and lower the vehicle to the ground. Torque lug nuts to 135 ft-lbs.

Illustration 19



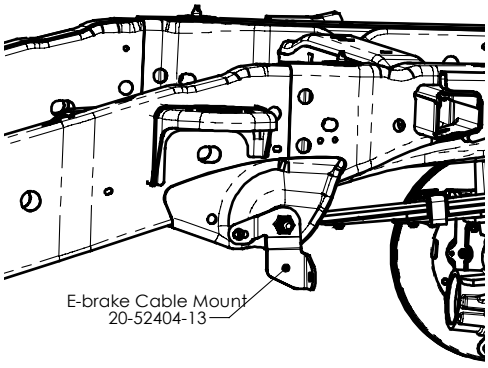
46. Recheck ALL hardware used to install complete suspension system at this time. Anything not tightened to the specified torque needs to be tightened now. Refer to chart on the last page of these instructions for general and specified torque values.

Rear Installation Instructions

1. Raise the vehicle. If working without a shop hoist support vehicle with suitable safety stands. To do this put vehicle in gear, block front wheels, both in front and behind tires, then disengage emergency brake. Place floor jack underneath rear axle and raise vehicle. Place suitable safety stands under frame to support vehicle and lower vehicle onto safety stands.

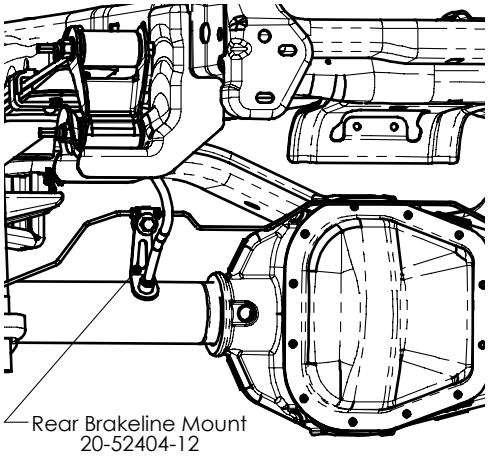
2. Locate the Parking Brake Cable on the driver's side of the vehicle. There is a cable hanger bracket attached to the front spring pivot bolt. Remove the Cable from this bracket that connects to the Driver's side rear brake. Now remove the bracket and replace with the RCD Emergency Brake Cable Mount 20-52404-13 and then reinstall the cable **(Illustration 20).**

Illustration 20



3. Locate the Brake Hose Mount on the Rear Axle. Remove the vent hose from the nipple. Unscrew the vent tube, move brake line out of the way, and install RCD Rear Brakeline Mount 20-52404-12 in its place. Using the 7/16" x 1-1/2" bolt, washers, and nut provided, bolt brakeline to top of new bracket **(Illustration 21).**

Illustration 21



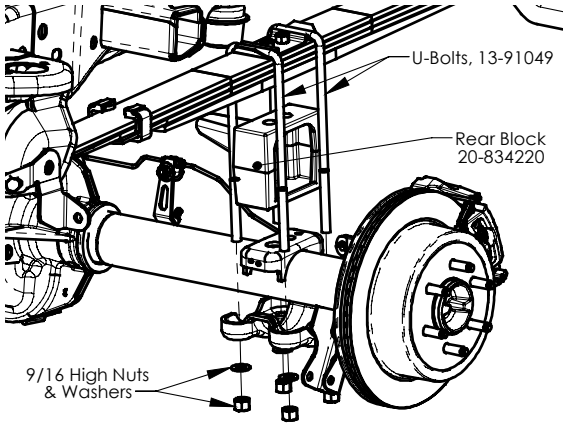
4. With the floor jack, raise the rear axle enough to relieve tension on the shock absorbers and remove them.

5. Remove the rear U-bolts attaching rear axle to the Driver's side leaf spring. Carefully lower the rear axle.

WARNING: Do not allow axle to hang by any hoses or cables.

6. Insert new Lift Block (20-834220) on axle pad. Make sure the Block's pins index into the holes in the axle housing spring pad **(Illustration 22)**. The wing on the Block faces the inside of the vehicle. Carefully raise the rear axle until the Block makes contact with the leaf spring. Make sure the two pins are aligned with the holes in the Block.

Illustration 22



7. Re-mount axle to spring using the new U-bolts (13-91049), 9/16" Washers, 9/16" High Nuts and existing spring plates. Torque U-bolt nuts to 110 ft. lbs. **(Illustration 22).**

8. **Repeat steps 3-5 on Passenger's side of the vehicle.**

9. Install the new Bilstein Rear Shock Absorbers (50-BE5-B317-T0) with the boot up. Using the existing hardware, attach the shocks to lower axle mounts. Attach shocks to upper frame mounts and torque the upper and lower nuts to 66 ft. lbs.

10. Install rear tire/wheel assemblies and lower the vehicle. Torque lug nuts to 150 ft-lbs.

Some Final Notes

11. After installation is complete, double check that all nuts and bolts are tight. Refer to the torque specifications chart on the last page.

12. If new tires are installed that are more than 10% taller than original tires, the speedometer must be recalibrated for the Anti-Lock Brake System to function properly. Contact an Authorized Ford dealer for details on recalibration.

13. With vehicle on the floor, cycle the steering lock to lock and inspect steering, suspension and driveline systems for proper operation, tightness and adequate clearance. Recheck brake/hose fitting for leaks. Be sure all hoses are long enough.

14. Have headlights readjusted to proper setting.

15. Realign front end to factory specifications. Be sure vehicle is at desired ride height prior to realignment.

Torque Specifications

General Torque Specifications:

5/16”	**20 ft. lbs.**
3/8”	**35 ft. lbs.**
7/16”	**60 ft. lbs.**
1/2”	**90 ft. lbs.**
9/16”	**160 ft. lbs.**
5/8”	**175 ft. lbs.**
3/4”	**250 ft. lbs.**

M6	**9 ft. lbs.**
M8	**23 ft. lbs.**
M10	**45 ft. lbs.**
M12	**75 ft. lbs.**
M14	**120 ft. lbs.**
M16	**165 ft. lbs.**
M18	**220 ft. lbs.**

Existing Hardware Torque Specifications:

Wheel Hub-to-Wheel Knuckle Bolts	148 ft. lbs.
Steering Rack Mounting Bolts 10mm	76 ft. lbs.
Front Differential Mounting Bolts	66 ft. lbs.
Front Driveshaft/Front Differential Pinion Flange Bolts	83 ft. lbs.
Sway Bar to Frame Mounting Bolts	35 ft. lbs.
Lower Control Arm Mounting Bolts	222 ft. lbs.
Sway Bar Link Nuts	66 ft. lbs.
Lower Ball Joint Nut	111 ft. lbs.
Axle Nut	20 ft. lbs.
Upper Ball Joint Nut	85 ft. lbs.
Tie Rod Nut	85 ft. lbs.
Caliper Mount to Steering Knuckle Bolts	148 ft. lbs.
Front Brakeline Banjo Bolts	26 ft. lbs.
Front Spring Eye Bolt and Nut	222.0 ft. lbs.
Hard Brake Line to Brake Hose Fitting	13 ft. lbs.
Front Shock, Upper Mount Nuts	35 ft. lbs.
Front Shock, Lower Mount Bolt	351 ft. lbs.
Wheel Lug Nuts	150 ft. lbs.
Front Halfshaft to Differential Bolts	60 ft. lbs.
U-Bolt Nuts	110 ft. lbs.
Rear Shock, Upper and Lower Mount Nuts	66 ft. lbs.
Anti-lock Brake Sensor Bolt	13 ft. lbs.